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Mycological Bulletin

No. 77

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Columbus, Ohio, May, 1907.

THE EDITOR NEEDS LITTLE SPACE.

We print the concluding portion of Mr. Kauffman's admirable Key to the species of *Cortinarius* in this number. It can not fail to be very useful to those who have the courage to attack this difficult genus. Our species are so numerous that every one can take a turn at the Key—but we will not be surprised if some of the amateurs or even students later report to us that some things are easier to master than this Key or the species of *Cortinarius*.

We are able to furnish an additional diversion also in the presentation of matter that amateurs may not have thought of as in the nature of "Mushrooms"—referring to the article on Moulds by Superintendent Sumstine. But these are Fungi, and the word Mycology includes this interesting group. We will be glad for additional articles and notes by patrons of the BULLETIN.

KEY TO THE SPECIES OF *CORTINARIUS*.

(Continued from p. 315.)

- f. Stem marginate-bulbous; gills very narrow and crowded; whole plant violaceous, large*C. Michiganensis* sp. nov.
- ff. Stem subequal or clavate; gills subdistant, adnate; whole plant violaceous-purple, medium size*C. iodes* B. & C.
- ee. Pileus not glutinous
 - f. Flesh and gills turning purple when bruised...*C. purpurascens* Fr.
 - ff. Flesh not turning purple
 - g. Stem marginate-bulbous; pileus yellowish or brownish, tinged violaceous; medium size*C. coeruleus* Fr.

- gg. Stem not marginate-bulbous
 - h. Pileus yellow; gills violaceous to cinnamon; stem white with violaceous apex *C. Berlesianus* Sacc. & Cub.
(Syn.=*C. tricolor* Pk.)
 - hh. Pileus and gills lilac; plant small..... *C. croceo-cocculius* (Pers.) Fr.
 - ddd. Pileus with neither olivaceous nor violaceous tints (except the first)
- e. Pileus glutinous
 - f. Gills olivaceous; pileus brownish-ochraceous.... *C. glutinosus* Pk.
 - ff. Gills whitish at first
 - g. Pileus bay-red *C. maculipes* Pk.
 - gg. Pileus pale ochraceous, spores globose.. *C. sphacrosporus* Pk.
 - fff. Gills violaceous at first, spores as in preceding... *C. delibutus* Fr.
- ee. Pileus not glutinous
 - f. Stem marginate-bulbous
 - g. Gills at first whitish *C. multiformis* Fr.
 - gg. Gills at first blue *C. glaucopus* Fr.
 - ggg. Gills at first yellow..... *C. fulgens* (Alb. & Schw.)
 - ff. Stem not marginate-bulbous, clavate to subequal
 - g. Gills and stem pallid at first, soon tinged brown
 - h. Pileus watery-cinnamon to brick-red on disk; in woods
C. glabrellus sp. nov.
 - hh. Pileus whitish to pale clay-color; in mushroom and flower-beds *C. intrusus* Pk.
 - gg. Gills and apex of stem violaceous at first, soon brownish
C. lanatipes Pk.
 - ggg. Gills and pileus drab-gray; viscid universal veil present
C. sterilis Kauff.
- B. Cuticle of pileus not composed of gelatinous cells, hence never viscid nor gelatinous. [*Inoloma*, *Talamonia*, *Dermocybe*, and *Hydrocybe*.]
 - a. Spores 12-16 μ long
 - b. Pileus rather large, squamulose; whole plant dark violaceous
C. violaceus Fr.
 - bb. Pileus small, chestnut color; stem white; spores 16x11 μ
C. sericipes Pk.
 - aa. Spores 10-12 μ long
 - b. Plants small, 2-4 cm. tall
 - c. Pileus hygrophanous, glabrous, bay-red (moist); gills subochraceous *C. badius* Pk.
 - cc. Pileus not hygrophanous, densely fibrillose; gills yellow
C. aurcifolius Pk.
 - bb. Plants larger
 - c. Stem distinctly sheathed or ringed by the universal veil
 - d. Pileus tawny; stem with cinnabar-colored, persistent, concentric rings *C. armillatus* (Alb. & Schw.)
 - dd. Pileus purplish-brown, copper-brown, etc., to drab; stem peronate, i. e., sheathed with a universal veil.. *C. torvus* Fr.
C. torvus nobilis Pk.

- ddd. Pileus tinged yellow or rufous; stem peronate and annulate by a white universal veil*C. canescens* Pk.
- cc. Stem not sheathed or ringed; the universal veil evanescent or absent.
- d. *Pileus hygrophanous, fibrillose-squamulose (like C. paleaceus)*
- e. Pileus dingy chestnut (moist); stem long and slender...*C. gracilis* Pk.
- ee. Pileus grayish; stem stout and short, bulbous.....*C. griseus* Pk.
- dd. *Pileus not hygrophanous, merely silky or innately fibrillose*
- e. Pileus reddish-gray, tinged purplish; gills purple or violaceous; spores 10-12μ long*C. pulchrifolius* Pk.
C. rubrocinereus Pk.
- ee. Pileus, stem and gills lilac; spores 9-10μ.....*C. lilacinus* Pk.
- eee. Pileus, stem and gills violaceous at first; spores 10-12μ long....
C. rimosus Pk.
- aaa. Spores 4-9μ long; if longer, plants are whitish or violaceous
- b. Stem and pileus scaly or shreddy
- c. Scales red (scarlet to vermillion).....*C. bolaris* Fr.
- cc. Scales brown to blackish
- d. Plant large, watery-spongy, soon dark chocolate colored.
C. squamulosus Pk.
- dd. Plants of medium size, wood-brown....*C. pholideus* Fr.
- bb. Stem not scaly.
- c. Stem with more or less persistent annular rings, or peronate
- d. *Plants large, 2-8 cm. or more tall; pileus in proportion*
- e. Pileus watery-cinnamon (moist); gills very distant...*C. distans* Pk.
- ee. Pileus buff, ochraceous, clay-colored or tawny
- f. Gills at first yellow or yellowish
- g. Pileus at first buff; stem peronate by the thin universal veil..
C. flavifolius Pk.
- gg. Pileus ochraceous to ferruginous; subannulate.....
C. Morrisii Pk.
- ggg. Pileus at first tawny-yellow, with pointed squamules on disk; peronate by tawny-yellow universal veil.....
C. annulatus Pk.
- ff. Gills at first brownish or ochraceous; pileus rufous-ochraceous
- g. Spores elliptical.....*C. bivulus* Fr.
- gg. Spores spherical, minute, 4-5μ diameter
C. subbivulus sp. nov.
- eee. Entire plant saffron-yellow.....*C. croceicolor* Kauff.
- eeee. Pileus some shade of blue or purple when young, buff to tan when old
- f. Plants stout, umber-purple to buff; pileus punctate; in or near swamps, in large troops.....*C. umidicola* Kauff.
- ff. Mature plants rather slender; pileus fawn-colored, tinged lavender when young, not punctate; common in hemlock woods....
C. deceptivus Kauff.
- dd. *Plants small, subannulate; pileus less than 3-4 cm. broad*
- e. Pileus fuscous, covered with white villose fibrils.....
C. paleaceus (Weinm.) Fr.
- ee. Pileus not-villose-squamulose, cinnamon to chestnut color

- f. Gills and stem violaceous at first.....*C. subflexipes* Pk.
- ff. Gills and stem pallid to brownish
 - g. On rotten wood; pileus watery cinnamon..*C. lignarius* Pk.
 - gg. On ground or moss; pileus bay to chestnut brown; annulus often distinct.....*C. castaneoides* Pk.
- cc. Stem with no annulus, or annulus evanescent
 - d. *Stem bulbous or clavate*
- e. Bulb depressed-marginate; gills heliotrope purple when young.....
C. obliquus Pk.
- ee. Bulb clavate to subclavate
 - f. Color of plant lilac to violaceous-white
 - g. Plants of medium size, violet tinge evanescent, never yellowish*C. alboviolaceus* (Pers.) Fr.
 - gg. Plants medium to large, lilac tinge persistent..*C. lilacinus* Pk.
 - ggg. Plants medium to small, violaceous to cinereous, tinged yellow or brown.....*C. simulans* Pk.
 - ff. Color of plant deep chrome, unchanging.....*C. callisteus* Fr.
 - fff. Color of plant watery-cinnamon or rufous-cinnamon (moist)
 - g. Stem whitish, pileus rufous-cinnamon to tan; not hygrophamous.....*C. subsalmoneus* sp. nov.
 - gg. Stem red; pileus hygrophamous, pinkish-ochraceous (dry)..
C. rubipes Kauff.
 - dd. *Stem subequal or tapering downward*
- e. Pileus distinctly hygrophamous
 - f. Plant small; pileus 2 cm. broad or less
 - g. Gills and stem violaceous when young
 - h. Stem stout, smooth; spores 7-9 μ long.....
C. castaneus (Bull.) Fr.
 - hh. Stem slender; spores 6-7 μ long
 - i. Gills and stem pale reddish violaceous at first; pileus blackish-brown; in woods.....*C. subflexipes* Pk.
 - ii. Gills dark-violaceous at first; pileus fuscous, tinged violaceous; on sphagnum.....*C. fuscoviolaceus* Pk.
 - gg. Gills ochraceous, pale; stem whitish, not slender.....
C. pulcher Pk.
 - ff. Pileus broader than 2 cm.
 - g. Pileus tawny orange to cinnamon; stem pale.....
C. armeniacus (Schacff.) Fr.
 - gg. Pileus watery-cinnamon; gills very distant....*C. distans* Pk.
 - ggg. Pileus and stem pale lavender; stem long and attenuated*C. cerverneus* Fr.
- ee. Pileus not hygrophamous
 - f. Pileus chestnut or cinnamon color
 - g. Stem whitish, soon dingy to brownish....*C. castanellus* Pk.
 - gg. Stem yellow, no olivaceous tinge
 - h. Gills at first yellow.....*C. cinnamomeus* (L.) Fr.
 - hh. Gills at first flame scarlet.....
C. semisanguineus flamineus Kauff.
 - hhh. Gills at first dark blood-red....*C. semisanguineus* Fr

- ff. Pileus tawny-olive; stem yellow, tinged olivaceous.....
C. croceus Fr.
- fff. Pileus and stem scarlet or blood red
- g. Pileus broad as compared with the rather short stem; spores
 $8 \times 5\mu$*C. cinnabarinus* Fr.
- gg. Pileus narrow; stem longer; spores $6 \times 4\mu$
C. sanguineus (Wulf.) Fr.

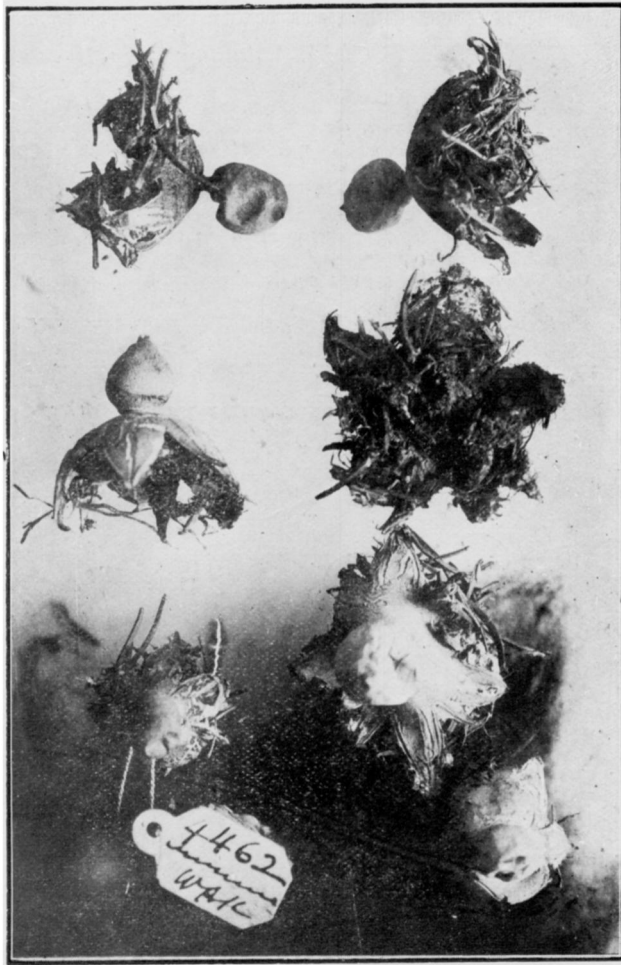


FIG. 245.—EARTH-STAR. GE-AS'-TER MIN'-I-MA.—A rather common plant here shown in natural size. The cut was made from specimens sent by Supt. M. E. Hard, who collected them near Chillicothe, Ohio, November 9, 1905.

CORRECTION.—The above half-tone was issued on p. 201 as *Geaster triplex*, which was a mistake; it should have been *Geaster minima* as here given. Both of these species were received at the same time and inadvertently the name of the little species got wrong in print.